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Marti Carrillo

Applicant	:	Tracy D. Mallory	Confirmation No. 3105
Application No.	:	09/825,708	
Filed	:	April 4, 2001	
Title	:	METHOD OF SHARING INFORMATION AMONG A PLURALITY OF STATIONS IN A FRAME-BASED COMMUNICATIONS NETWORK	
Grp./Div.	:	2665	
Examiner	:	Cynthia L. Davis	
Docket No.	:	42137/RJP/B600	

APPEAL BRIEF

Mail Stop Appeal Brief-Patents
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November 8, 2005

To The Hon. Judges of the Board of Patent Appeals and Interferences:

Applicant Tracy D. Mallory hereby submits this brief in support of Applicant's Notice of Appeal of September 30, 2005 with regard to Applicant's Claims 16 -22.

I. REAL PARTIES IN INTEREST

The real parties in interest are:

1. Broadcom Corporation, pursuant to a merger assignment recorded on August 6, 2003 at Reel 014363/Frame 0596 from Broadcom HomeNetworking, Inc., which, in turn, was the assignee of the Application at issue pursuant to an assignment recorded April 4, 2001 at Reel 011693/Frame 0583; and

2. Inventor Tracy D. Mallory.

II. RELATED APPEALS AND INTERFERENCES

None.

III. STATUS OF CLAIMS

Claims 1-15 are allowed; and

Claims 16-22 are under appeal.

IV. STATUS OF AMENDMENTS

No amendment was filed after the Final Rejection of May 5, 2005. A Response after Final Action was filed on August 4, 2005, but in his Advisory Action of August 24, 2005, the Examiner rejected the arguments made in the Response.

V. SUMMARY OF CLAIMED SUBJECT MATTER

The appealed claims are directed at a "method of sharing information among a plurality of stations on a communications network." *See* Claim 16. As outlined in independent Claim 16, the method requires "each of the plurality of stations being capable of transmitting and receiving *frames* over the communications network between any one station and all other stations, comprising periodically broadcasting by one station to all other stations capabilities and status announcements *sent in control frames*." (emphases added.)

Claims 17 - 22 depend on Claim 16, either directly or transitively, with each dependent Claim further specifying and thereby limiting the features and/or modes of operation of the control frames claimed in Claim 16.

The pertinent section in the Specification begins on page 54, line 15 and ends on page 85, line 14. The pertinent drawings are Fig. 37 through Fig. 55b. Individual pages/line numbers and drawings are referenced in the argument section below.

VI. GROUNDS OF REJECTION

The grounds of rejection presented for review are:

1.   The Examiner rejected Claims 16 - 19 under 35 U.S.C. § 102 as being anticipated by U.S. Patent No. 6,697,325 to Cain.

2.   The Examiner rejected Claims 20 and 22 under 35 U.S.C. § 103 as being unpatentable over Cain in view of U.S. Patent No. 5,461,608 to Yoshiyama.

3.   The Examiner rejected Claim 21 under 35 U.S.C. § 103 as being unpatentable over Cain in view of U.S. Patent No. 6,606,352 to Cain.

VII.   ARGUMENT

A.   Introduction.

The Examiner has rejected Claims 16 - 19 under 35 U.S.C. § 102 as being anticipated by U.S. Patent No. 6,697,325 to Cain. The Examiner has further rejected Claims 20 and 22 under 35 U.S.C. § 103(a) as being unpatentable over Cain in view of U.S. Patent No. 5,461,608 to Yoshiyama. Finally, the Examiner has rejected Claim 22 under 35 U.S.C. § 103(a) as being unpatenable over Cain in view of U.S. Patent No. 6,606,352 to Cain (Cain II).

The Applicant instead submits that each Claim is separately patentable. Hence, if the ground of rejection is sustained as to one of the rejected claims, the rejection will not be equally applicable to the other claims. However, by contrast, if the rejection is overruled as to independent Claim 16, Claims 17 - 22, which each depend on Claim 16 either directly or transitively, will be allowable based on Claim 16.

Specifically, Cain fails to disclose at least two elements required by independent Claim 16: the "capab[ility of network stations] of transmitting and receiving frames" and the use of "control frames" for "periodic broadcasting by one station to all other stations [of] capabilities and status announcements . . . ." *See* Claim 16. Therefore, Cain does not anticipate Claim 16.

Moreover, Cain fails to disclose any of the further features and/or modes of operations with regard to the control frames called for in dependent Claims 18 - 19. Finally, neither Claims 20 or 22 are unpatentable over Cain in view Yoshiyama, nor is Claim 21 unpatentable over Cain in view Cain II, as the further features and/or modes of operations with regard to the control frames called for in dependent Claims 20 - 22 are either missing in the cited references and/or there is no motivation to combine the pertinent teachings from the respective references in any of these cases. Therefore, Claims 17 - 22 are patentable independently of whether Claim 16 is patentable.

B.   Independent Claim 16 Is Not Anticipated Under § 102 By Cain.

"Anticipation under 35 U.S.C. § 102 requires the presence in a single prior art disclosure of *each and every element* of a claimed invention." *Lewmar Marine, Inc., v. Barient, Inc.*, 827 F.2d 744, 747 (Fed. Cir. 1987) (emphasis added).

Claim 16 claims "[a] method of sharing information among a plurality of stations on a communications network, each of the plurality of stations being capable of transmitting and receiving *frames* over the communications network between any one station and all other stations, comprising periodically broadcasting by one station to all other stations capabilities and status announcements sent in *control frames*." *See* Claim 16.   Hence, any station in a communications network in accordance with the claimed invention must (1) be capable of transmitting and receiving frames and (2) at least one of these stations must send control frames to all other stations periodically, broadcasting capabilities and status announcements.   Cain discloses neither of these elements:

The Examiner relies on the background section of the specification of Cain as anticipating all claim elements disclosed in Applicant's Claim 16.   *See* Advisory Action of August 24, 2005, at 11.; Final Rejection of May 5, 2005, ¶ 3; Office Action of Nov. 30, 2004, ¶ 2.   Cain's background section discusses "communication networks . . . used for interconnecting computers and computer peripherals."   U.S. Patent No. 6,697,325 ("Cain"), 1:13-15. Specifically, Cain refers to "[a] communication network [that] includes a number of nodes . . . ." *Id.* at 1:15-16.   These communication network "nodes" are arguably comparable to the "plurality of stations on a communications network" claimed in Applicant's Claim 16.   However, the network nodes disclosed in Cain do not "transmit[] and receiv[e] frames," let alone "control frames."   Compare *id.* at 1:13-2:64 with Applicant's Claim 16.

Specifically, the network nodes in Cain "route protocol messages . . . utilizing various routing protocols in order to determine the routes that are used to route the protocol messages." Cain at 1:16-19.   As an example of "[o]ne type of routing protocol," Cain discusses "'link state' routing protocols," which require each node to maintain a database of the network topology. *Id.* at 1:20-27.   The nodes use "link state advertisement (LSA) protocol messages," which are used

to test the communication links with neighbor nodes in order to update the nodes' topology databases. *Id.* at 1:28-40.

The Examiner relies on these "protocol messages" as anticipating the frame and the control frame element of Applicant's Claim 16. Specifically, the Examiner argues that "protocol messages are messages of a certain format (protocol) that are used to communicate between the nodes of a communication system. This is the same as a frame." Advisory Action of August 24, 2005, at 11.

However, the term "message" is a generic term for transmission of information in a computer network. *See, e.g.,* McGraw-Hill Multimedia Encyclopedia of Science Technology (2d vs. 1998) (defining "message" as: "[computer science] An arbitrary amount of information with beginning and end defined or implied: usually, it originates in one place and is intended to be transmitted to another place"). Moreover, any computer network must utilize at least one protocol. *Id.* (defining "protocol" as "[computer science]: 1. A set of hardware and software interfaces in a terminal or computer *which allows it to transmit over a communications network*, and which collectively forms a communications language. . . ." (emphasis added)); *see also* Free On-Line Dictionary of Computing, at http://wombat.doc.ic.ac.uk/foldoc/ (defining "protocol" as "*[a] set of formal rules describing how to transmit data,* especially across a network. Low level protocols define the electrical and physical standards to be observed, bit- and byte-ordering and the transmission and error detection and correction of the bit stream. High level protocols deal with the data formatting, including the syntax of messages, the terminal to computer dialogue, character sets, sequencing of messages etc." (emphasis added)). Without a protocol to follow, the individual nodes of a computer network cannot communicate with each other. *See id.*

Frames, by contrast, are a very specific type of "message," satisfying complex format requirements in order to be amenable to tasks that cannot be accomplished by messages that do not satisfy this format. This is also true for protocol messages. Accordingly, on page 54 of the Specification, the Applicant discloses that link functions implemented by the present invention "use control frames to carry protocol messages between stations." Spec. at 54:19-20. If, as the Examiner suggests, protocol messages were frames already (*see* Advisory Action of August 24,

2005, at 11.) this statement would be senseless. However, frames are a type of format usable for messages, including protocol messages. In other words, the term "protocol message" refers to the message *content* (a message regarding the network protocol, incl. link state updates as discussed in Cain, *see* Cain at 1:20-59) while the term "frame" refers to the *format* of the message. In the case of the present invention, frames are used to implement link control functions for rate negotiation, link integrity, capability announcements and limited automatic repeat requests (LARQs). Spec. at 54:16-20.

The Examiner's own citation to *Newton's Telecomm Dictionary's* definition of the term "frame" reveals the complexity of the frame format:

> 1. A frame is a packet. It's a generic term specific to a number of data communication protocols. A frame of data is a logical unit of data, which is commonly a fragment of a much larger set of data, such as a file of text or image information. As the larger file is prepared for transmission, it is fragmented into smaller units. *Each fragment of data is packaged into a frame format, which comprises a header, payload, and trailer. The header prepends (prepend means added to the front of) the payload and includes a beginning flag, or set of framing bits, which are used for purposes of both frame delineation (beginning of the frame) and synchronization of the receiving device with the speed of transmission across the transmission link. Also included in the header are control information (frame number), and address information (e.g., originating and terminating addresses). Following the header is the payload, which is the data unit (fragment) being transmitted. Appending the payload is the trailer, which comprises data bits used for error detection and correction, and a final set of framing bits, or ending flag, for purposes of frame delineation (ending the frame).* This frame format, in the broader sense, also is knows as a data packet. *Frame, therefore, is a term specific to certain bit-oriented data transmission protocols* such as SDLC (Synchronous Data Link Control) and HDCL (High-level Data Link Control), with the latter being a generic derivative of SDLC. In the case of SDLC, a frame is very similar to a block, which would be employed in a

> character-oriented protocol such as IBM's BSC (Binary Synchronous
> Communication), also know as Bisync. See also BSC, HDCL, Packet, and
> SDLC.

NEWTON'S TELECOMM DICTIONARY (20th ed. 2004) (emphases added, definitions inapplicable to the technology at issue omitted).

Right away this definition, which, again, was cited by the Examiner, reveals that a frame "is a term specific to certain . . . protocols." Hence, frames are not a feature of every communications network protocol.

Furthermore, the above definition includes a detailed description of how frames are formatted: A frame consists of individual fragments packaged into a format that includes a header, payload, and trailer. The header is added to the front of the payload while the trailer is added to the back. The header includes a beginning flag or set of framing bits to delineate and synchronize the frames, as well as control and address information. The trailer includes data bits for error detection and correction, and an ending flag or final set of framing bits for frame delineation. Finally, the payload contains the data fragment to be transmitted. It is apparent to one reasonably skilled in the art that not every protocol message transmitted within a communications network will satisfy these complex requirements of a frame.

A comparison with the Applicant's Specification further supports this definition: Pages 55 through 58 as well as Figures 37 through 55b of the Specification discuss and show, respectively, exemplary embodiments of frame formats in accordance with the present invention, which satisfy the complex format requirements for frames as outlined in the cited *Newton's Telecomm Dictionary* definition. Unfortunately, the Examiner appears to have only applied the first two sentences of the cited definition, arguing that any packet or logical unit of data is a frame, including protocol messages. *See* Final Rejection of May 5, 2005, ¶ 1. The Examiner repeated this misconception in the Advisory Action, essentially claiming that any protocol message equals a frame. *See* Advisory Action of August 24, 2005, at 11. As explained *supra*, this is not the case.

Moreover, in addition to Applicant's Claim 16 requiring the communications network stations to be capable of transmitting and receiving frames, Claim 16 also calls for the use of

"control frames." In other words, Claim 16 does not only require the communications network stations to be capable of transmitting and receiving frames, but it further requires that at least one of the stations utilize this capability to send (i.e., transmit) specific types of frames, namely "control frames." A control frame is not only formatted like a frame but it is also utilized for control functions within the communications network.

Specifically, in the case of the Applicant's invention, control frames are needed to implement link control functions. Spec. at 54:16-17. These functions include rate negotiation, link integrity, capability announcements and limited automatic repeat requests (LARQs), as already mentioned *supra*. *Id*. at 54:16-20.

Hence, as Cain only discusses protocol messages, but not the use of a frame or control frame format as claimed in Applicant's Claim 16 and as necessary to implement the functionality of the present invention, Cain does not anticipate Claim 16.

C.   Dependent Claim 17 Is Not Anticipated Under § 102 By Cain Independently Of Whether Cain Anticipates Claim 16.

Claim 17 is dependent on Claim 16. Claim 17 requires the control frames of Claim 16 to "*include status flags* determinative of one or more of: a version of protocol under which the communications network is operating, optional feature support, link-layer priority usage, and network configuration commands." *See* Claim 17 (emphasis added).

Cain does not only fail to disclose control frames, but Cain *a fortiori* does not disclose control frames that include status flags determinative of the version of protocol under which the communications network is operating, optional feature support, link-layer priority usage, or network configuration commands. Hence, even if Cain anticipated the use of control frames for periodic broadcasting of capabilities and status announcement in general, which it does not, Cain fails to disclose further features of these control frames called for in Claim 17, thereby not anticipating Claim 17 independently of whether Cain anticipates Claim 16.

The Examiner argues that the mere fact that Cain suggests use of link state advertisement (LSA) protocol messages means that the messages would communicate this protocol version in status flags as required by Claim 17. *See* Office Action of Nov. 30, 2004, ¶ 2. However, Cain neither expressly states this nor can this be implied: Cain uses the example of an LSA protocol

throughout its specification. *See* Cain, 1:1-7:8. However, in a network that only uses one protocol (even if it is not the LSA protocol, Cain does not suggest using multiple, different protocols at the same time), there is no need to specify the protocol version in the transmitted messages as the same one is used by each network node at all times. Indeed, it would be counterintuitive to include redundant information in a message, thereby artificially inflating message size and network traffic at the cost of efficiency. Moreover, even if Cain suggested including information about the protocol version in its messages, which it does not, there is no suggestion to do so using status flags.

Hence, even if Cain anticipated Claim 16, which it does not, Cain would not anticipate Claim 17.

D.   Dependent Claim 18 Is Not Anticipated Under § 102 By Cain Independently Of Whether Cain Anticipates Claim 16 or Claim 17.

Claim 18 is dependent on Claim 17, which is dependent on Claim 16. As already discussed, *supra*, Claim 17 requires the control frames of Claim 16 to "include status flags determinative of one or more of: a version of protocol under which the communications network is operating, optional feature support, link-layer priority usage, and network configuration commands." *See* Claim 17. Claim 18 further requires the "stations receiving the control frames [to] make operational decisions based upon the status flags without further interaction amongst the stations on the communications network." *See* Claim 18.

As already argued *supra*, Cain does not anticipate the additional control features called for in Claim 17 independently of whether Cain anticipates Claim 16. Moreover, Cain does not discuss whether its network nodes "make operational decisions based upon the status flags [included in the received control frames] *without further interaction amongst the stations on the communications network.*" *See* Claims 17-18 (emphasis added). Instead, Cain prescribes the opposite: "When a communication link fails, *the various nodes in the communication network interoperate* to route protocol messages around the failed communication link." Cain, 1:45-47 (emphasis added). Cain therefore does not anticipate Claim 18, independently of whether Cain anticipates Claim 16 or Claim 17.

The Examiner argues that simply because the network nodes in Cain update their topology database and run an algorithm to update paths (such as the shortest ones), that this somehow means that the network nodes in Cain make operational decisions based upon the status flags without further interaction amongst the stations on the communications network. *See* Office Action of Nov. 30, 2004, ¶ 2. However, for one, Cain does not state that any operations are based on status flags; it simply describes the running of some operations to update stored network topology after an LSA protocol message is received. Cain, 1:36-44. Second, immediately after this description, Cain states that "the various nodes in the communication network interoperate to route protocol messages around the failed communication link." Cain, 1:45-47. This is the opposite of "mak[ing] operational decisions . . . without further interaction amongst the stations on the communications network." *See* Claims 18.

Hence, even if Cain anticipated Claim 16 or Claim 17, which it does not, Cain would not anticipate Claim 18.

E. Dependent Claim 19 Is Not Anticipated Under § 102 By Cain Independently Of Whether Cain Anticipates Claim 16.

Claim 19 is dependent on Claim 16. Claim 19 requires the control frames of Claim 16 to be "transmitted by a station once per minute or upon a change in current status of the station." *See* Claim 19.

Cain does not only fail to disclose control frames, but Cain *a fortiori* does not disclose control frames that are transmitted by a station once per minute or upon a change in current status of the station. Hence, even if Cain anticipated the use of control frames for periodic broadcasting of capabilities and status announcement in general, which it does not, Cain fails to disclose further features of these control frames called for in Claim 19, thereby not anticipating Claim 19 independently of whether Cain anticipates Claim 16.

The Examiner argues that merely because Cain suggests that a message be sent upon failure of a communication link, that this means that a message is sent upon status change of a station, or a network "node" (to use the terminology of Cain). *See* Office Action of Nov. 30, 2004, ¶ 2. However, failure of a communication link does not have to result in a status change within a network station or node. Failure of a link foremost means a status change of that link.

It can also be viewed as a status change of the communication network as a whole. However, the status of individual network stations or nodes does not have to be affected.

By contrast, in case of the present invention, the link integrity function regards stations rather than links between stations: "The purpose of the Link Integrity Function is to provide means for hardware and/or software to determine whether or not [a] *station is able to receive frames* from at least one other station on the network." Spec. at 64:28-31 (emphasis added). Hence, when it comes to communication links, a focus of the present invention is whether a station can still be reached by at least one other station of the network, not whether a particular link between two stations has failed. *See id.* Indeed, "[i]n a preferred embodiment [of the present invention] all *stations include a visible Link Status Indicator* (LSI) (e.g. an LED) for indicating Link Integrity Status." Spec. at 66:12-14 (emphasis added). In other words, each station indicates whether it is reachable or not. *See id.*

However, in a communication network in accordance with Cain, "each node periodically tests the communication *links to each of its neighbors*" and "[w]hen *a communication link* fails, the various nodes in the communication network interoperate to route protocol messages *around the failed communication link*." Cain 1:30-48 (emphases added). In other words, Cain concerns itself with the status of links, not nodes. *See id.* Indeed, in the passage immediately following the passage cited by the Examiner as supposedly anticipating Claim 19 of the present invention (*see* Office Action of Nov. 30, 2004, ¶ 2), Cain states that "[i]t is likely that node A and node B will detect the communication link failure at different times, ..." Cain at 5:16-18. Clearly, Cain discusses the detection of the status of the *link* between node A and node B, not a status of the nodes itself.

For comparison, in the field of software architectures, a distinction is made between software components and connectors. *See, e.g.,* Taylor et al., *A Component- and Message-Based Architectural Style for GUI Software*, 22 IEEE TRANSACTIONS ON SOFTWARE ENG'G 6, at 390-406 (June 1996). Software components can be viewed as network nodes linked together by software connectors. *See id.* at 390. However, a network link implemented as a software connector stores its own states. *See id.* at 393. Therefore, a link failure can be implemented as a

status change of the connector, i.e., the link, and does not require a status change of any component, i.e., a node or station.

Hence, that one or more nodes in a network in accordance with Cain respond to a link failure by sending a message does not imply that any of the sending nodes are acting based on an internal status change, i.e., "a change in current status *of the station*." *See* Claim 19 (emphasis added). Instead, the passage cited by Examiner states that "[w]hen a node . . . *detects the communication link failure*, [it] sends an LSA protocol message to [other nodes] indicating that the communication link failed." Cain, 5:10-13 (emphasis added). This statement suggests that in a network in accordance with Cain, nodes respond to changes in link states, not node states.

Accordingly, even if Cain anticipated Claim 16, which it does not, Cain would not anticipate the additional features called for in Claim 19.

F.   Dependent Claim 20 Is Not Unpatentable Over Cain In View of Yoshiyama Under § 103(a) Independently Of Whether Cain Anticipates Claim 16.

Claim 20 is dependent on Claim 16. Claim 20 requires "a second copy of a most recent control frame [to be] transmitted by a station at a randomly selected interval after a control frame is sent by the station announcing a status change." *See* Claim 20.

The Examiner admits that Claim 20 is not anticipated by Cain. *See* Office Action of Nov. 30, 2004, ¶ 3. However, the Examiner nonetheless rejected Claim 20 under 35 U.S.C. § 103(a) as being unpatentable over Cain in view of U.S. Patent no. 5,461,608 to Yoshiyama. *Id.*

> Section 103(a) of the Patent Act states:
>
> A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole *would have been obvious at the time the invention was made* to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

35 U.S.C. § 103(a) (2004) (emphasis added).

However, "[o]bviousness is a legal conclusion based on underlying facts of four general types, all of which must be considered by the trier of fact: (1) the scope and content of the prior art; (2) the level of ordinary skill in the art; (3) the differences between the claimed invention and the prior art; and (4) any objective indicia of nonobviousness." *Crown Operations Int'l, Ltd. v. Solutia Inc.*, 289 F.3d 1367, 1375 (Fed. Cir. 2002) (citing *Graham v. John Deere Co.*, 383 U.S. 1, 17-18 (1966)). Moreover, "[d]etermination of obviousness cannot be based on the hindsight combination of components selectively culled from the prior art to fit the parameters of the patented invention." *Id.* at 1376 (citing *ATD Corp. v. Lydall, Inc.*, 159 F.3d 534, 546 (Fed. Cir. 1998)). In other words, one cannot use "the inventor's disclosure as a blueprint for piecing together the prior art to defeat patentability--the essence of hindsight." *Ecolochem, Inc. v. So. Cal. Edison Co.*, 227 F.3d 1361, 1371-72 (Fed. Cir. 2000) (quoting *In re Dembiczak*, 175 F.3d 994, 999 (Fed. Cir. 1999)).

Instead, "*[t]here must be a teaching or suggestion* within the prior art, within the nature of the problem to be solved, or within the general knowledge of a person of ordinary skill in the field of the invention, to look to particular sources, *to select particular elements, and to combine them as combined by the inventor.*" *Id.* (citing *Ruiz v. A.B. Chance Co.*, 234 F.3d 654, 665 (Fed. Cir. 2000); *ATD Corp.*, 159 F.3d at 546; *Heidelberger Druckmaschinen A.G. v. Hantscho Commercial Prods., Inc.*, 21 F.3d 1068, 1072 (Fed. Cir. 1994)) (emphases added). This requirement is generally referred to as "motivation to combine." *See Heidelberger Druckmaschinen*, 21 F.3d at 1072 (holding that "[w]hen the patented invention is made by combining known components to achieve a new system, the prior art must provide a suggestion or *motivation to make such a combination.*" (emphasis added)).

Here, Yoshiyama regards ring communication networks. U.S. Patent no. 5,461,608 ("Yoshiyama"), 1:29. In a ring network, each network station is connected to exactly two other stations in the network. *See id.* at 1:34-39, figs. 1, 5A-5C. It is therefore sensible for a network station in a ring network to send a second message to a second node after a first message to a first node has not been received, as this will reveal the location of a faulty link in the ring network. *See id.* at 4:45-5:28. However, this phenomenon is specific to ring networks and is not applicable to networks in general.

Cain, by contrast, regards general network topologies, which are not limited to ring networks. *See* Cain at 1:13-44. In a general network topology, sending two copies of the same message will normally not suffice to reveal the exact location of a faulty link. Cain therefore uses periodic link state advertisement (LSA) protocol messages (which aren't copies of each other) to detect failed links. *See* Cain at 1:28-35.

The Examiner argues that the motivation to combine Cain with the concept of sending copies of messages as disclosed in Yoshiyama "would be to ensure that [the message] was received by all stations on the network." *See* Office Action of Nov. 30, 2004, ¶ 3. However, first of all, Yoshiyama does not use duplicate messages to ensure that a message is received by all stations. Yoshiyama uses duplicate messages to identify the location of failed links. *See* Yoshiyama at 4:45-5:28. Second, as this approach is ring network specific and does not work for general network topologies, it would have been illogical to adopt Yoshiyama's approach of sending second copies and combine them with the periodic LSA protocol messages that Cain uses within general network topologies to detect failed links. *See* Cain at 1:28-35. Therefore, there is no motivation to combine these aspects of Cain and Yoshiyama.

In the case of the present invention, a second copy of a most recent control frame announcing a status change is sent to avoid "los[ing] a frame due to temporary changes in the [transmission] channel, impulse noise, etc." Spec. at 66:32-67:1. Hence, the sending of a second copy of a control frame in the context of the present invention serves an entirely different purpose than the sending of a second copy of a message in a ring network in accordance with Yoshiyama: The present invention teaches sending a second control frame to avoid loss due to temporary changes, noise, or other interferences in the transmission channel. *See* Spec. at 66:32-67:1. Yoshiyama, by contrast, suggests sending a second message to pinpoint the location of a faulty link in a ring network. *See* Yoshiyama at 4:45-5:28.

Accordingly, there is no motivation to take the element of sending duplicate messages for the narrowly-tailored purpose of pinpointing the location of a faulty link in a ring network from Yoshiyama and to combine it with the teachings of Cain, where this purpose cannot be served due to the lack of limitation to ring network topologies. *See Crown Operations*, 289 F.3d at 1376. The Examiner appears to simply presume that there was motivation to add this element to

Cain for the entirely distinct purpose of "ensur[ing] that [the control frame] was received by all stations on the network," which happens to be the purpose disclosed in the Applicant's disclosure. *See* Office Action of Nov. 30, 2004, ¶ 3. This seems to be exactly the kind of hindsight use of "the inventor's disclosure as a blueprint for piecing together the prior art to defeat patentability" that has been rejected by the Federal Circuit. *Ecolochem*, 227 F.3d at 1371-72; *see also Crown Operations*, 289 F.3d at 1376.

Therefore, Claim 20 is not unpatentable over Cain in view of Yoshiyama under § 103(a). Accordingly, Claim 20 is patentable independently of whether Claim 16 is patentable.

G.   Dependent Claim 21 Is Not Unpatentable Over Cain In View of Cain II Independently Of Whether Cain Anticipates Claim 16.

Claim 21 is dependent on Claim 16. Claim 21 requires that the control frames of Claim 16 be "sent at a highest link layer protocol priority." *See* Claim 21.

The Examiner admits that Claim 21 is not anticipated by Cain. *See* Office Action of Nov. 30, 2004, ¶ 4. However, the Examiner nonetheless rejected Claim 21 under 35 U.S.C. § 103(a) as being unpatentable over Cain in view of U.S. Patent no. 6,606,325 to Cain ("Cain II"). *Id.* Specifically, the Examiner argues that Cain II discloses "messages being sent over a special fast path" and that it therefore "would have been obvious to one skilled in the art to send the messages containing the status information at a higher priority than normal traffic." *Id.*

However, the "fast path" disclosed in Cain II has nothing to do with higher priority network traffic. In the context of Cain II, the term "fast path" is merely defined as "the router logic that forwards packets," as opposed to "the router logic that processes packets," which is "referred to as the 'control plane' of the router." U.S. Patent no. 6,606,325 ("Cain II"), 1:47-51. Essentially, a router in accordance with Cain II distinguishes between received packets destined for the router itself versus those which are destined for a different network segment. *Id.* at 1:41-48. In the first case, the router processes the packet, while in the latter case, the router forwards the packet. *Id.* The router logic that forwards packets to other network segments is called "fast path" within Cain II's specification. *Id.* at 49-50. However, the term "fast path" does not denote a faster or higher priority path. It is simply a bypass for messages that do not need to be processed but are instead forwarded on to another network segment. Cain II does not discuss

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higher priority traffic.

Accordingly, since Cain does not anticipate Claim 21, as already admitted by the Examiner (*see* Office Action of Nov. 30, 2004, ¶ 4), Claim 21 cannot be obvious in view of Cain II either as Cain II does not discuss the use of higher protocol priority as called for in Claim 21. Therefore, Claim 21 is patentable independently of whether Claim 16 is patentable.

H.   Dependent Claim 22 Is Not Unpatentable Over Cain In View of Yoshiyama Independently Of Whether Cain Anticipates Claim 16.

Claim 22 is dependent on Claim 16. Claim 22 requires the control frames of Claim 16 to "include[] . . . operation code[s] that may be set to either a request operation code or an announcement operation code such that when a station receives the control frame with the request operation code a timer is set and the receiving station sends a control frame with an announcement operation code at timer expiration." *See* Claim 22.

The Examiner admits that Claim 22 is not anticipated by Cain. *See* Office Action of Nov. 30, 2004, ¶ 3. However, the Examiner nonetheless rejected Claim 22 under 35 U.S.C. § 103(a) as being unpatentable over Cain in view of Yoshiyama. *Id.*

Yoshiyama regards ring communication networks where one node acts as a master node while the other nodes act as slave nodes. Yoshiyama at 1:37-39. The master node sends command messages to the slave nodes, which then respond to the master node. *Id.* at. 1:66-2:5. Cain, on the other hand, regards general network topologies rather than ring networks, as already discussed in the context of Claim 20, *supra*, and does not distinguish between master and slave nodes. There is no motivation to combine the teaching of using command messages in a master-slave ring network to a general topology network of equal nodes.

Moreover, Yoshiyama does not disclose the use of request and announcement operation codes as called for in Claim 22. *See* Claim 22; compare with Yoshiyama, passim. In fact, Yoshiyama does not disclose annotating messages where the sending node expects a response differently from messages where no response is expected at all. *See* Yoshiyama, passim. This is no surprise as, in the master-slave hierarchy disclosed in Yoshiyama, the sending master node appears to always expect a response from the receiving slave node(s) and an annotation would

therefore be superfluous. *See id.* Whether a message is a command or a response depends on the sender (master or slave), not a message annotation.

The Examiner argues that the motivation to combine Yoshiyama with Cain "would be to indicate whether a response is expected by the sending station." Office Action of Nov. 30, 2004, ¶ 3. First of all, as just noted *supra*, Yoshiyama does not disclose the use of request operation codes and it is therefore unclear which teaching of Yoshiyama the Examiner suggests to combine with Cain. The Examiner merely refers to a section in Yoshiyama that discloses that slave nodes respond to messages from the master node. *See* Office Action of Nov. 30, 2004, ¶ 3, referring to Yoshiyma at 1:66-2:5.

The Applicant agrees that the mere concept that a network node may respond to a received message by sending another message is not novel. However, Applicant's Claim 22 discloses the use of two operation codes, request and announcement, to trigger the receiving node of a request message to set a timer and respond with an announcement message upon expiration of the timer. Yoshiyama makes no reference to annotating messages with operation codes. Instead, the Examiner merely seems to have concluded independently that the "inclu[sion] of operation codes" "would have been obvious" without offering a basis in the prior art. Office Action of Nov. 30, 2004, ¶ 3. Hence, it appears that the Examiner has again used "the inventor's disclosure as a blueprint" in hindsight. *See Ecolochem*, 227 F.3d at 1371-72; *Crown Operations*, 289 F.3d at 1376.

Claim 22 is not unpatentable over Cain in view of Yoshiyama as neither Cain nor Yoshiyama discloses the use of operation codes as called for in Claim 22. Moreover, there is no motivation to combine Cain with Yoshiyama. Therefore, Claim 22 is patentable independently of whether Claim 16 is patentable.

I.   Conclusion.

The Applicant submits that the Examiner erred in rejecting Claims 16 - 19 under 35 U.S.C. § 102 as being anticipated by U.S. Patent No. 6,697,325 to Cain. While Cain discusses computer networks, it does not disclose the use of frames or control frames, as required by Claim 16. Moreover, Cain does not disclose any of the additional features and/or operational modes of these control frames called for in Claims 17 - 19. Therefore Claims 17 - 19 are not only not
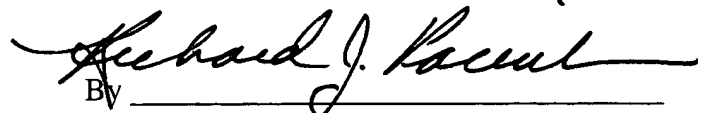
anticipated by Cain for failure to disclose the elements of use of frames and control frames, but also for failure to disclose any of the additional features and/or operational modes of the control frames called for in Claims 17 - 19.

The Applicant submits that the Examiner also erred in rejecting Claims 20 and 22 under 35 U.S.C. § 103(a) as being unpatentable over Cain in view of U.S. Patent No. 5,461,608 to Yoshiyama and also in rejecting Claim 22 under 35 U.S.C. § 103(a) as being unpatenable over Cain in view of U.S. Patent No. 6,606,352 to Cain (Cain II). In the case of Claim 20, there is no motivation to cull the duplicate message element from Yoshiyama and combine it with Cain. In the case of Claim 21, the higher priority element was neither disclosed in Cain nor Cain II. And in the case of Claim 22, there was neither a motivation to combine Yoshiyama with Cain nor was the operation code element disclosed in either. Therefore Claims 20 - 22 are not only not anticipated by Cain for failure to disclose the elements of use of frames and control frames, as called for in Claim 16, but also for failure to disclose the additional features and/or operational modes of the control frames called for in Claims 20 - 22 in any of the cited references and/or for lack of motivation to combine the cited references.

Accordingly, the Applicant believes and has shown that the Examiner's rejections are unfounded and that each of the claims under appeal is separately patentably distinct from the cited references. Therefore, the Applicant respectfully asks this Board to reverse the rejections of Claims 16 - 22.

Respectfully submitted,

CHRISTIE, PARKER & HALE, LLP

By _____
Richard J. Paciulan
Reg. No. 28,248
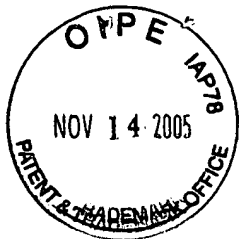626/795-9900

CLAIMS APPENDIX

The following is a list of the Claims involved in this Appeal:

16.   16.   A method of sharing information among a plurality of stations on a communications network, each of the plurality of stations being capable of transmitting and receiving frames over the communications network between any one station and all other stations, comprising periodically broadcasting by one station to all other stations capabilities and status announcements sent in control frames.

17.   17.   The method of Claim 16 wherein the control frames include status flags determinative of one or more of:

a version of protocol under which the communications network is operating,

optional feature support,

link-layer priority usage, and

network configuration commands.

18.   18.   The method of Claim 17 wherein stations receiving the control frames make operational decisions based upon the status flags without further interaction amongst the stations on the communications network.

19.   19.   The method of Claim 16 wherein the control frames are transmitted by a station once per minute or upon a change in current status of the station.

20.   20.   The method of Claim 16 wherein a second copy of a most recent control frame is transmitted by a station at a randomly selected interval after a control frame is sent by the station announcing a status change.

21.   21.   The method of Claim 16 wherein the control frames are sent at a highest link layer protocol priority.

22.   22.   The method of Claim 16 wherein the control frame includes an operation code that may be set to either a request operation code or an announcement operation code such that when a station receives the control frame with the request operation code a timer is set and the receiving station sends a control frame with an announcement operation code at timer expiration.
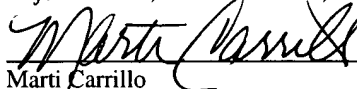
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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant	: Tracy D. Mallory	Confirmation No. 3105
Application No.	: 09/825,708	
Filed	: April 4, 2001	
Title	: METHOD OF SHARING INFORMATION AMONG A PLURALITY OF STATIONS IN A FRAME-BASED COMMUNICATIONS NETWORK	
Grp./Div.	: 2665	
Examiner	: Cynthia L. Davis	
Docket No.	: 42137/RJP/B600	

SUBMISSION OF APPELLANT'S BRIEF
TO THE BOARD OF PATENT APPEALS AND INTERFERENCES

Mail Stop Appeal Brief-Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Post Office Box 7068
Pasadena, CA 91109-7068
November 8, 2005

Commissioner:

Enclosed for filing is the Appellant's <u>Brief</u> for this application.

_____ An extension of time to file Appellant's <u>Brief</u> is requested, and a Petition for Extension of Time and the applicable fee are enclosed.

___X___ Our check for $<u>500</u> to cover the fee for the appeal brief is enclosed.

The Commissioner is hereby authorized to charge any further fees under 37 CFR 1.16 and 1.17 which may be required by this paper to Deposit Account No. 03-1728. Please show our docket number with any charge or credit to our Deposit Account. **A copy of this letter is enclosed.**

Respectfully submitted,

CHRISTIE, PARKER & HALE, LLP

By Richard J. Pacilian
Reg. No. 28,248
626/795-9900

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